WPDES PERMIT

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

PERMIT TO DISCHARGE UNDER THE WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM

Superior Refining Company LLC

is permitted, under the authority of Chapter 283, Wisconsin Statutes, to discharge from a facility located at

2407 Stinson Avenue, Superior, WI 54880

to

Newton Creek (WBIC 2843650) within the St. Louis and Lower Nemadji Watershed (LS01) in the Lake Superior Basin in Douglas County

in accordance with the effluent limitations, monitoring requirements and other conditions set forth in this permit.

The permittee shall not discharge after the date of expiration. If the permittee wishes to continue to discharge after this expiration date an application shall be filed for reissuance of this permit, according to Chapter NR 200, Wis. Adm. Code, at least 180 days prior to the expiration date given below.

State of Wisconsin Department of Natural Resources
For the Secretary

By _____
Adrian Stocks, Director
Bureau of Water Quality

_____
Date Permit Signed/Issued

PERMIT TERM: EFFECTIVE DATE - December 01, 2019 **EXPIRATION DATE – November 30, 2024**

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1 Influent Requirements

1.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
701	All voluntary monitoring of the water supply for mercury shall be reported at this sample point. Sampling is performed at the city tap within Superior Refining Company's wastewater treatment plant.

1.2 Monitoring Requirements

The permittee shall comply with the following monitoring requirements.

1.2.1 Sampling Point 701 - Water Supply Mercury Results

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Mercury, Total Recoverable		ng/L	Quarterly	Grab	Sampling for mercury at this sampling point is voluntary, but when it is done, it should be in conjunction with the sampling performed at Outfall 001.

1.2.1.1 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

2 In-Plant Requirements

2.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
105	DMR Sample Point for reporting results of mercury field blanks.

2.2 Monitoring Requirements and Limitations

The permittee shall comply with the following monitoring requirements and limitations.

2.2.1 Sampling Point 105 - MERCURY FIELD BLANK

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Mercury, Total Recoverable		ng/L	Quarterly	Blank	

2.2.1.1 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

3 Surface Water Requirements

3.1 Sampling Point(s)

The discharge(s) shall be limited to the waste type(s) designated for the listed sampling point(s).

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
001	Boiler blowdown, water softener wastewater, process area stormwater runoff, construction area stormwater runoff, and stormwater collected in Fire Water Pond 2, Fire Water Pond 3, Fire Water Pond 5, Stormwater Collection Pond 4, WWTP Recycle Pond 7, and WWTP Recycle Pond 8 prior to discharge to Newton Creek.
002	Stormwater sampled after Storm Water Collection Pond 4 (emergency overflow conditions only). Water from Pond 4 is now routed through the treatment system with eventual monitoring and discharge through Outfall 001.
003	Stormwater sampled after Outfall 003 (tank farm secondary containment stormwater).
004	Outfall 004 limits and requirements apply only to periodic direct discharge of treated hydrostatic test water to Newton Creek sampled prior to discharge. The hydrostatic test water shall be treated via an oil water separator prior to sampling and discharge.

3.2 Monitoring Requirements and Effluent Limitations

The permittee shall comply with the following monitoring requirements and limitations.

3.2.1 Sampling Point (Outfall) 001 - PRIMARY OUTFALL

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
Temperature Maximum	Weekly Avg	54 deg F	Daily	Continuous	Limit effective November and February per compliance schedule. See sections 3.2.1.2 and 3.2.1.3.
Temperature Maximum	Weekly Avg	57 deg F	Daily	Continuous	Limit effective March per compliance schedule. See sections 3.2.1.2 and 3.2.1.3.
Temperature Maximum	Weekly Avg	63 deg F	Daily	Continuous	Limit effective April per compliance schedule. See sections 3.2.1.2 and 3.2.1.3.
Temperature Maximum	Weekly Avg	70 deg F	Daily	Continuous	Limit effective May per compliance schedule. See sections 3.2.1.2 and 3.2.1.3.
Temperature Maximum	Weekly Avg	77 deg F	Daily	Continuous	Limit effective June per compliance schedule. See sections 3.2.1.2 and 3.2.1.3.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Temperature Maximum	Weekly Avg	81 deg F	Daily	Continuous	Limit effective July per compliance schedule. See sections 3.2.1.2 and 3.2.1.3.
Temperature Maximum	Weekly Avg	79 deg F	Daily	Continuous	Limit effective August per compliance schedule. See sections 3.2.1.2 and 3.2.1.3.
Temperature Maximum	Weekly Avg	73 deg F	Daily	Continuous	Limit effective September per compliance schedule. See sections 3.2.1.2 and 3.2.1.3.
pH (Maximum)	Daily Max	9.0 su	Daily	Continuous	See section 3.2.1.5.
pH (Minimum)	Daily Min	6.0 su	Daily	Continuous	See section 3.2.1.5.
pH Total Exceedance Time Minutes	Monthly Total	446 minutes	Daily	Continuous	See section 3.2.1.5.
pH Exceedances Greater Than 60 Minutes	Daily Max	0 Number	Daily	Continuous	See section 3.2.1.5.
BOD_5, Total	Daily Max	30 mg/L	Weekly	24-Hr Flow Prop Comp	
BOD_5, Total	Monthly Avg	15 mg/L	Weekly	24-Hr Flow Prop Comp	
Suspended Solids, Total	Daily Max	30 mg/L	Weekly	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	20 mg/L	Weekly	24-Hr Flow Prop Comp	
Phosphorus, Total	Rolling 12 Month Avg	1.0 mg/L	Weekly	24-Hr Flow Prop Comp	Interim limit, effective through June 30, 2021
Phosphorus, Total	Monthly Avg	0.225 mg/L	Weekly	24-Hr Flow Prop Comp	Limit effective July 1, 2021. See section 3.2.1.4.
Phosphorus, Total	6-Month Avg	0.075 mg/L	Weekly	24-Hr Flow Prop Comp	Limit effective July 1, 2021. See section 3.2.1.4.
Phosphorus, Total	6-Month Avg	0.15 lbs/day	Weekly	Calculated	Limit effective July 1, 2021. See section 3.2.1.4.
Dissolved Oxygen	Daily Min	4.0 mg/L	Weekly	Grab	
Oil & Grease (Hexane)		mg/L	Weekly	Grab	
Chloride		mg/L	Weekly	24-Hr Flow Prop Comp	
Nitrogen, Ammonia (NH_3-N) Total	Daily Max	9.0 mg/L	Monthly	24-Hr Flow Prop Comp	
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	5.6 mg/L	Monthly	24-Hr Flow Prop Comp	
Mercury, Total Recoverable		ng/L	Quarterly	Grab	See section 3.2.1.1.
Barium, Total Recoverable	Weekly Avg	170 µg/L	Quarterly	Grab	Limit effective July 1, 2021.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Barium, Total Recoverable	Weekly Avg	0.52 lbs/day	Quarterly	Calculated	Limit effective July 1, 2021.
Sulfur, as Sulfide		mg/L	Quarterly	Grab	
Phenols, Total		µg/L	Quarterly	24-Hr Flow Prop Comp	
Chromium $^{+6}$		µg/L	Quarterly	Grab	
Chromium, Total Recoverable		µg/L	Quarterly	24-Hr Flow Prop Comp	
Arsenic, Total Recoverable		µg/L	See Permit Note	24-Hr Flow Prop Comp	Sampling required every other year beginning 2020. See section 3.2.1.8.
Cadmium, Total Recoverable		µg/L	See Permit Note	24-Hr Flow Prop Comp	Sampling required every other year beginning 2020. See section 3.2.1.8.
Copper, Total Recoverable		µg/L	See Permit Note	24-Hr Flow Prop Comp	Sampling required every other year beginning 2020. See section 3.2.1.8.
Cyanide, Amenable		µg/L	See Permit Note	Grab Comp	Sampling required every other year beginning 2020. See section 3.2.1.8.
Lead, Total Recoverable		µg/L	See Permit Note	24-Hr Flow Prop Comp	Sampling required every other year beginning 2020. See section 3.2.1.8.
Nickel, Total Recoverable		µg/L	See Permit Note	24-Hr Flow Prop Comp	Sampling required every other year beginning 2020. See section 3.2.1.8.
Selenium, Total Recoverable		µg/L	See Permit Note	24-Hr Flow Prop Comp	Sampling required every other year beginning 2020. See section 3.2.1.8.
Silver, Total Recoverable		µg/L	See Permit Note	24-Hr Flow Prop Comp	Sampling required every other year beginning 2020. See section 3.2.1.8.
Zinc, Total Recoverable		µg/L	See Permit Note	24-Hr Flow Prop Comp	Sampling required every other year beginning 2020. See section 3.2.1.8.
Hardness, Total as $CaCO_3$		mg/L	See Permit Note	24-Hr Flow Prop Comp	Sampling required every other year beginning 2020. See section 3.2.1.8.
PAHs		µg/L	See Permit Note	24-Hr Flow Prop Comp	Sampling required every other year beginning 2020. See sections 3.2.1.7 and 3.2.1.8.
BHC, alpha		µg/L	Once	24-Hr Flow Prop Comp	Sampling required once during 2020. See section 3.2.1.9.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Chlordane		µg/L	Once	24-Hr Flow Prop Comp	Sampling required once during 2020. See section 3.2.1.9.
4,4'-DDT		µg/L	Once	24-Hr Flow Prop Comp	Sampling required once during 2020. See section 3.2.1.9.
4,4'-DDE		µg/L	Once	24-Hr Flow Prop Comp	Sampling required once during 2020. See section 3.2.1.9.
Heptachlorepoxide		µg/L	Once	24-Hr Flow Prop Comp	Sampling required once during 2020. See section 3.2.1.9.
Hexachlorobenzene		µg/L	Once	24-Hr Flow Prop Comp	Sampling required once during 2020. See section 3.2.1.9.
PCB Total		µg/L	Once	24-Hr Flow Prop Comp	Sampling required once during 2020. See section 3.2.1.9.
Dioxin, 2,3,7,8-TCDD		ng/L	Once	24-Hr Flow Prop Comp	Sampling required once during 2020. See section 3.2.1.9.
Dieldrin		µg/L	Once	24-Hr Flow Prop Comp	Sampling required once during 2020. See section 3.2.1.9.
Toxaphene		µg/L	Once	24-Hr Flow Prop Comp	Sampling required once during 2020. See section 3.2.1.9.
Chronic WET	Monthly Avg	11 TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	See section 3.2.1.6.

3.2.1.1 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

3.2.1.2 Effluent Temperature Monitoring

For monitoring temperature continuously, collect measurements in accordance with s. NR 218.04(13). This means that discrete measurements shall be recorded at intervals of not more than 15 minutes during the 24-hour period. Report the maximum temperature measured during the day on the DMR.

3.2.1.3 Effluent Temperature Limitations

Limits for Temperature, Maximum: The effluent limitations for "Temperature, Maximum" become effective on August 1, 2021 as specified in the Schedules section. Monitoring is required daily upon permit reissuance. Daily maximum temperatures shall be reported so applicable weekly average limits can be compared to the weekly averages of the reported daily maximum temperatures.

Month	Weekly Average Effluent Limitation	Effective Date
January	No Limit	
February	54	8/1/2021
March	57	8/1/2021
April	63	8/1/2021
May	70	8/1/2021
June	77	8/1/2021
July	81	8/1/2021
August	79	8/1/2021
September	73	8/1/2021
October	No Limit	
November	54	8/1/2021
December	No Limit	

3.2.1.4 Phosphorus Water Quality Based Effluent Limitation(s)

The final water quality based effluent limits for phosphorus are **0.075 mg/L** as a 6-month average and **0.225 mg/L** as a monthly average, and will take effect per the Compliance Schedule.

Note: The permittee may also submit an application for a variance within 60 days of this permit reissuance, as noted in the permit cover letter, in accordance with s. 283.15, Stats.

If Adaptive Management or Water Quality Trading is approved as part of the permit application for the next reissuance or as part of an application for a modification or revocation and reissuance, the plan and specifications submittal, construction, and final effective dates for compliance with the total phosphorus WQBEL may change in the reissued or modified permit. In addition, the numeric value of the water quality based effluent limit may change based on new information (e.g. a TMDL) or additional data. If a variance is approved for the next reissuance, interim limits and conditions will be imposed in the reissued permit in accordance with s. 283.15, Stats., and applicable regulations. A permittee may apply for a variance to the phosphorus WQBEL at the next reissuance even if the permittee did not apply for a phosphorus variance as part of this permit reissuance.

Additional Requirements: If a water quality based effluent limit has taken effect in a permit, any increase in the limit is subject to s. NR 102.05(1) and ch. NR 207, Wis. Adm. Code. When a six-month average effluent limit is specified for Total Phosphorus the applicable averaging periods are May through October and November through April.

3.2.1.5 Continuous pH Monitoring

The permittee shall maintain the pH of the discharge within the range of 6.0 to 9.0 standard units (s.u.) except excursions are permitted subject to the following conditions:

- The pH is monitored continuously;

- The total time during which the pH is outside the range of 6.0 to 9.0 s.u. shall not exceed 446 minutes in any calendar month;
- No individual pH excursion outside the range of 6.0 to 9.0 s.u. shall exceed 60 minutes in duration;
- No individual pH excursion shall be outside the range of 4.0 to 11.0 s.u.; and
- On a daily basis, the permittee shall report the minimum and maximum pH, the total time that the pH is outside the range of 6.0 to 9.0 s.u. and the number of pH excursions outside the range of 6.0 to 9.0 that exceed 60 minutes in duration.

3.2.1.6 Whole Effluent Toxicity (WET) Testing

Primary Control Water: Lake Superior water outside of Lake Superior Bay, or reconstituted laboratory water

Instream Waste Concentration (IWC): 9.1%

Dilution series: At least five effluent concentrations and dual controls must be included in each test.

- **Chronic:** 100, 30, 10, 3, 1% and any additional selected by the permittee.

WET Testing Frequency:

Chronic tests shall be conducted once each year in rotating quarters in order to collect seasonal information about the discharge. Tests are required during the following quarters.

- **Chronic:** January – March 2020 (Quarter 1), April – June 2021 (Quarter 2), July – September 2022 (Quarter 3), October – December 2023 (Quarter 4), and January – March 2024 (Quarter 1).

  Chronic WET testing shall continue after the permit expiration date (until the permit is terminated or reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required October – December 2025 (Quarter 4).

Testing: WET testing shall be performed during normal operating conditions. "Normal operating conditions," for the purposes of Chronic WET testing, shall mean operating conditions which allow for a representative sample to be taken of the discharge. Permittees are not allowed to turn off or otherwise modify treatment systems, production processes, or change other operating or treatment conditions during WET tests.

Reporting: The permittee shall report test results on the Discharge Monitoring Report form, and also complete the "Whole Effluent Toxicity Test Report Form" (Section 6, "*State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition*"), for each test. The original, complete, signed version of the Whole Effluent Toxicity Test Report Form shall be sent to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., P.O. Box 7921, Madison, WI 53707-7921, within 45 days of test completion. The Discharge Monitoring Report (DMR) form shall be submitted electronically by the required deadline.

Determination of Positive Results: A chronic toxicity test shall be considered positive if the Toxic Unit - Chronic (TU_c) is greater than 11.0 for either species. The TU_c shall be calculated as follows: $TU_c = 100 \div IC_{25}$.

Additional Testing Requirements: Within 90 days of a test which showed positive results, the permittee shall submit the results of at least 2 retests to the Biomonitoring Coordinator on "Whole Effluent Toxicity Test Report Forms". The 90-day reporting period shall begin the day after the test which showed a positive result. The retests shall be completed using the same species and test methods specified for the original test (see the Standard Requirements section herein).

3.2.1.7 PAHs, Total Compounds

The effluent concentration of PAHs, total compounds, shall be calculated as the sum of the individual effluent concentrations of chrysene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene, phenanthrene and pyrene. Analysis shall

be performed using EPA test method - SW-846 8310 (HPLC) or other approved test method with similar detection limits (such as EPA Method 8270 GC/MS).

3.2.1.8 Monitoring Frequency for PAHs, Hardness, and Designated Metals

Monitoring for Arsenic, Cadmium, Copper, Cyanide, Lead, Nickel, Selenium, Silver, Zinc, Hardness, and PAHs is required every other year. This monitoring requirement shall be effective for the years 2020, 2022, and 2024.

3.2.1.9 Bioaccumulation Substances

Monitoring for bioaccumulating substances referenced by this footnote in Table 3.2.1 above shall be monitored once during calendar year 2020.

Notification shall be provided in accordance with Standard Requirements condition for Planned Changes, if the permittee becomes aware of discharge of any of the substances listed in Table 3.2.1 above as persistent bioaccumulating substances identified by this footnote. The notification shall include the concentration of the substance and the probable cause of its presence. Within twelve months of becoming aware of a discharge of any of the substances, the permittee shall conduct a study on the sources of the persistent bioaccumulating toxic substances referenced to this footnote and report to the Department those activities which the permittee could conduct to reduce to the maximum extent practicable the discharge of these substances.

3.2.2 Sampling Point (Outfall) 002 - POND 4 EMERGENCY OVERFLOW

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Per Occurrence	Estimated	See section 3.2.2.1.
Oil & Grease (Hexane)	Daily Max	30 mg/L	Per Occurrence	Grab	See section 3.2.2.1.
Oil & Grease (Hexane)	Monthly Avg	15 mg/L	Per Occurrence	Grab	See section 3.2.2.1.
PFOA		ng/L	Per Occurrence	Grab	Perfluorooctanoic acid. See section 3.2.2.1.
PFOS		ng/L	Per Occurrence	Grab	Perfluorooctane sulfonate. See section 3.2.2.1.

3.2.2.1 "Per Occurrence" Monitoring Frequency

The parameters specified in Table 3.2.2 above shall be monitored daily when emergency overflow conditions necessitate the discharge through Outfall 002.

3.2.3 Sampling Point (Outfall) 003 - STORMWATER RUNOFF

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Monthly	Estimated	
Oil & Grease (Hexane)	Daily Max	30 mg/L	Weekly	Grab	
Oil & Grease (Hexane)	Monthly Avg	15 mg/L	Weekly	Grab	

3.2.4 Sampling Point (Outfall) 004 - HYDROSTATIC TEST WATER

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Per Occurrence	Estimated	See section 3.2.4.1.
Oil & Grease (Hexane)	Daily Max	15 mg/L	Per Occurrence	Grab	See section 3.2.4.1.
Suspended Solids, Total	Daily Max	30 mg/L	Per Occurrence	Grab	See section 3.2.4.1.
Suspended Solids, Total	Monthly Avg	20 mg/L	Per Occurrence	Grab	See section 3.2.4.1.
Dissolved Oxygen	Daily Min	4.0 mg/L	Per Occurrence	Grab	See section 3.2.4.1.
pH Field	Daily Max	9.0 su	Per Occurrence	Grab	See section 3.2.4.1.
pH Field	Daily Min	6.0 su	Per Occurrence	Grab	See section 3.2.4.1.

3.2.4.1 "Per Occurrence" Monitoring Frequency

The parameters specified in Table 3.2.4 above shall be monitored daily when discharge through Outfall 004 occurs.

4 Schedules

4.1 Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus

The permittee shall comply with the WQBELs for Phosphorus as specified. No later than 14 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification requirement.

Required Action	Due Date
Construction Upgrade Progress Report #1: The permittee shall submit a progress report on construction upgrades, or provide the department with an update on the progress with complying with the final WQBELs.	06/30/2020
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	06/30/2021
Achieve Compliance: The permittee shall achieve compliance with final phosphorus WQBELs.	07/01/2021

4.2 Temperature Limits

This compliance schedule requires the permittee to achieve compliance by the specified date

Required Action	Due Date
Report on Effluent Discharges: Submit a report on effluent temperature with conclusions regarding compliance.	06/30/2020
Action Plan: Submit an action plan for complying with all effluent temperature limits that remain following the Department's review for necessity.	12/31/2020
Complete Actions: Complete actions necessary to achieve compliance with effluent temperature limits.	07/31/2021
Achieve Compliance: The permittee shall achieve compliance with the weekly average temperature limits.	08/01/2021

4.3 Barium Limit

The permittee shall complete the below actions to ensure that compliance with the Barium weekly average water quality-based effluent limitation of 170 ug/L is met.

Required Action	Due Date
Report on Effluent Discharges: Submit a report on levels of Barium in the effluent with conclusions regarding compliance.	06/30/2020
Action Plan: Submit an action plan for complying with the effluent Barium limit.	12/31/2020
Complete Actions: Complete actions necessary to achieve compliance with effluent Barium limit.	07/31/2021
Achieve Compliance: The permittee shall achieve compliance with the weekly average barium effluent limit.	08/01/2021

5 Standard Requirements

NR 205, Wisconsin Administrative Code (Conditions for Industrial Dischargers): The conditions in ss. NR 205.07(1) and NR 205.07(3), Wis. Adm. Code, are included by reference in this permit. The permittee shall comply with all of these requirements. Some of these requirements are outlined in the Standard Requirements section of this permit. Requirements not specifically outlined in the Standard Requirement section of this permit can be found in ss. NR 205.07(1) and NR 205.07(3).

5.1 Reporting and Monitoring Requirements

5.1.1 Monitoring Results

Monitoring results obtained during the previous month shall be summarized and reported on a Department Wastewater Discharge Monitoring Report. The report may require reporting of any or all of the information specified below under 'Recording of Results'. This report is to be returned to the Department no later than the date indicated on the form. A copy of the Wastewater Discharge Monitoring Report Form or an electronic file of the report shall be retained by the permittee.

Monitoring results shall be reported on an electronic discharge monitoring report (eDMR). The eDMR shall be certified electronically by a responsible executive or officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

If the permittee monitors any pollutant more frequently than required by this permit, the results of such monitoring shall be included on the Wastewater Discharge Monitoring Report.

The permittee shall comply with all limits for each parameter regardless of monitoring frequency. For example, monthly, weekly, and/or daily limits shall be met even with monthly monitoring. The permittee may monitor more frequently than required for any parameter.

5.1.2 Sampling and Testing Procedures

Sampling and laboratory testing procedures shall be performed in accordance with Chapters NR 218 and NR 219, Wis. Adm. Code and shall be performed by a laboratory certified or registered in accordance with the requirements of ch. NR 149, Wis. Adm. Code. Groundwater sample collection and analysis shall be performed in accordance with ch. NR 140, Wis. Adm. Code. The analytical methodologies used shall enable the laboratory to quantitate all substances for which monitoring is required at levels below the effluent limitation. If the required level cannot be met by any of the methods available in NR 219, Wis. Adm. Code, then the method with the lowest limit of detection shall be selected. Additional test procedures may be specified in this permit.

5.1.3 Recording of Results

The permittee shall maintain records which provide the following information for each effluent measurement or sample taken:

- the date, exact place, method and time of sampling or measurements;
- the individual who performed the sampling or measurements;
- the date the analysis was performed;
- the individual who performed the analysis;
- the analytical techniques or methods used; and
- the results of the analysis.

5.1.4 Reporting of Monitoring Results

The permittee shall use the following conventions when reporting effluent monitoring results:

- Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 0.1 mg/L, report the pollutant concentration as < 0.1 mg/L.

- Pollutant concentrations equal to or greater than the limit of detection, but less than the limit of quantitation, shall be reported and the limit of quantitation shall be specified.

- For purposes of calculating NR 101 fees, the 2 mg/l lower reporting limits for BOD_5 and Total Suspended Solids shall be considered to be limits of quantitation

- For the purposes of reporting a calculated result, average or a mass discharge value, the permittee may substitute a 0 (zero) for any pollutant concentration that is less than the limit of detection. However, if the effluent limitation is less than the limit of detection, the department may substitute a value other than zero for results less than the limit of detection, after considering the number of monitoring results that are greater than the limit of detection and if warranted when applying appropriate statistical techniques.

5.1.5 Records Retention

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings or electronic data records for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit for a period of at least 3 years from the date of the sample, measurement, report or application, except for sludge management forms and records, which shall be kept for a period of at least 5 years.

5.1.6 Other Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or correct information to the Department.

5.1.7 Reporting Requirements – Alterations or Additions

The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:

- The alteration or addition to the permitted facility may meet one of the criteria for determining whether a facility is a new source.
- The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification requirement applies to pollutants which are not subject to effluent limitations in the existing permit.
- The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use of disposal sites not reported during the permit application process nor reported pursuant to an approved land application plan. Additional sites may not be used for the land application of sludge until department approval is received.

5.2 System Operating Requirements

5.2.1 Noncompliance Reporting

The permittee shall report the following types of noncompliance by a telephone call to the Department's regional office within 24 hours after becoming aware of the noncompliance:

- any noncompliance which may endanger health or the environment;
- any violation of an effluent limitation resulting from a bypass;
- any violation of an effluent limitation resulting from an upset; and
- any violation of a maximum discharge limitation for any of the pollutants listed by the Department in the permit, either for effluent or sludge.

A written report describing the noncompliance shall also be submitted to the Department as directed at the end of this permit within 5 days after the permittee becomes aware of the noncompliance. On a case-by-case basis, the Department may waive the requirement for submittal of a written report within 5 days and instruct the permittee to submit the written report with the next regularly scheduled monitoring report. In either case, the written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; the steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance; and if the noncompliance has not been corrected, the length of time it is expected to continue.

A scheduled bypass approved by the Department under the 'Scheduled Bypass' section of this permit shall not be subject to the reporting required under this section.

NOTE: Section 292.11(2)(a), Wisconsin Statutes, requires any person who possesses or controls a hazardous substance or who causes the discharge of a hazardous substance to notify the Department of Natural Resources **immediately** of any discharge not authorized by the permit. **The discharge of a hazardous substance that is not authorized by this permit or that violates this permit may be a hazardous substance spill. To report a hazardous substance spill, call DNR's 24-hour HOTLINE at 1-800-943-0003**.

5.2.2 Bypass

Except for a controlled diversion as provided in the 'Controlled Diversions' section of this permit, any bypass is prohibited and the Department may take enforcement action against a permittee for such occurrences under s. 283.89, Wis. Stats. The Department may approve a bypass if the permittee demonstrates all the following conditions apply:

- The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities or adequate back-up equipment, retention of untreated wastes, reduction of inflow and infiltration, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance. When evaluating feasibility of alternatives, the department may consider factors such as technical achievability, costs and affordability of implementation and risks to public health, the environment and, where the permittee is a municipality, the welfare of the community served; and
- The bypass was reported in accordance with the 'Noncompliance Reporting' section of this permit.

5.2.3 Scheduled Bypass

Whenever the permittee anticipates the need to bypass for purposes of efficient operations and maintenance and the permittee may not meet the conditions for controlled diversions in the 'Controlled Diversions' section of this permit, the permittee shall obtain prior written approval from the Department for the scheduled bypass. A permittee's written request for Department approval of a scheduled bypass shall demonstrate that the conditions for unscheduled bypassing are met and include the proposed date and reason for the bypass, estimated volume and duration of the bypass, alternatives to bypassing and measures to mitigate environmental harm caused by the bypass. The department may require the permittee to provide public notification for a scheduled bypass if it is determined there is significant

public interest in the proposed action and may recommend mitigation measures to minimize the impact of such bypass.

5.2.4 Controlled Diversions

Controlled diversions are allowed only when necessary for essential maintenance to assure efficient operation provided the following requirements are met:

- Effluent from the wastewater treatment facility shall meet the effluent limitations established in the permit. Wastewater that is diverted around a treatment unit or treatment process during a controlled diversion shall be recombined with wastewater that is not diverted prior to the effluent sampling location and prior to effluent discharge;
- A controlled diversion may not occur during periods of excessive flow or other abnormal wastewater characteristics;
- A controlled diversion may not result in a wastewater treatment facility overflow; and
- All instances of controlled diversions shall be documented in wastewater treatment facility records and such records shall be available to the department on request.

5.2.5 Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training as required in ch. NR 114, Wis. Adm. Code, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

5.2.6 Operator Certification

The wastewater treatment facility shall be under the direct supervision of a state certified operator. In accordance with s. NR 114.53, Wis. Adm. Code, every WPDES permitted treatment plant shall have a designated operator-in-charge holding a current and valid certificate. Treatment plant owners shall notify the department of any changes in the operator-in-charge within 30 days. Note that s. NR 114.52(22), Wis. Adm. Code, lists types of facilities that are excluded from operator certification requirements (i.e. private sewage systems, pretreatment facilities discharging to public sewers, industrial wastewater treatment that consists solely of land disposal, agricultural digesters and concentrated aquatic production facilities with no biological treatment).

5.2.7 Spill Reporting

The permittee shall notify the Department in accordance with ch. NR 706 (formerly NR 158), Wis. Adm. Code, in the event that a spill or accidental release of any material or substance results in the discharge of pollutants to the waters of the state at a rate or concentration greater than the effluent limitations established in this permit, or the spill or accidental release of the material is unregulated in this permit, unless the spill or release of pollutants has been reported to the Department in accordance with s. NR 205.07 (1)(s), Wis. Adm. Code.

5.2.8 Planned Changes

In accordance with ss. 283.31(4)(b) and 283.59, Stats., the permittee shall report to the Department any facility expansion, production increase or process modifications which will result in new, different or increased discharges of pollutants. The report shall either be a new permit application, or if the new discharge will not violate the effluent limitations of this permit, a written notice of the new, different or increased discharge. The notice shall contain a description of the new activities, an estimate of the new, different or increased discharge of pollutants and a description of the effect of the new or increased discharge on existing waste treatment facilities. Following receipt of

this report, the Department may modify this permit to specify and limit any pollutants not previously regulated in the permit.

5.2.9 Duty to Halt or Reduce Activity

Upon failure or impairment of treatment facility operation, the permittee shall, to the extent necessary to maintain compliance with its permit, curtail production or wastewater discharges or both until the treatment facility operations are restored or an alternative method of treatment is provided.

5.3 Surface Water Requirements

5.3.1 Permittee-Determined Limit of Quantitation Incorporated into this Permit

For pollutants with water quality-based effluent limits below the Limit of Quantitation (LOQ) in this permit, the LOQ calculated by the permittee and reported on the Discharge Monitoring Reports (DMRs) is incorporated by reference into this permit. The LOQ shall be reported on the DMRs, shall be the lowest quantifiable level practicable, and shall be no greater than the minimum level (ML) specified in or approved under 40 CFR Part 136 for the pollutant at the time this permit was issued, unless this permit specifies a higher LOQ.

5.3.2 Appropriate Formulas for Effluent Calculations

The permittee shall use the following formulas for calculating effluent results to determine compliance with average concentration limits and mass limits and total load limits:

Weekly/Monthly/Six-Month/Annual Average Concentration = the sum of all daily results for that week/month/six-month/year, divided by the number of results during that time period. [Note: When a six-month average effluent limit is specified for Total Phosphorus the applicable periods are May through October and November through April.]

Weekly Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the week.

Monthly Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the month.

Six-Month Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the six-month period. [Note: When a six-month average effluent limit is specified for Total Phosphorus the applicable periods are May through October and November through April.]

Annual Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the entire year.

Total Monthly Discharge: = monthly average concentration (mg/L) x total flow for the month (MG/month) x 8.34.

Total Annual Discharge: = sum of total monthly discharges for the calendar year.

12-Month Rolling Sum of Total Monthly Discharge: = the sum of the most recent 12 consecutive months of Total Monthly Discharges.

5.3.3 Effluent Temperature Requirements

Weekly Average Temperature – The permittee shall use the following formula for calculating effluent results to determine compliance with the weekly average temperature limit (as applicable): Weekly Average Temperature = the sum of all daily maximum results for that week divided by the number of daily maximum results during that time period.

Cold Shock Standard – Water temperatures of the discharge shall be controlled in a manner as to protect fish and aquatic life uses from the deleterious effects of cold shock. 'Cold Shock' means exposure of aquatic organisms to a rapid decrease in temperature and a sustained exposure to low temperature that induces abnormal behavior or physiological performance and may lead to death.

Rate of Temperature Change Standard – Temperature of a water of the state or discharge to a water of the state may not be artificially raised or lowered at such a rate that it causes detrimental health or reproductive effects to fish or aquatic life of the water of the state.

5.3.4 Visible Foam or Floating Solids

There shall be no discharge of floating solids or visible foam in other than trace amounts.

5.3.5 Surface Water Uses and Criteria

In accordance with NR 102.04, Wis. Adm. Code, surface water uses and criteria are established to govern water management decisions. Practices attributable to municipal, industrial, commercial, domestic, agricultural, land development or other activities shall be controlled so that all surface waters including the mixing zone meet the following conditions at all times and under all flow and water level conditions:

a) Substances that will cause objectionable deposits on the shore or in the bed of a body of water, shall not be present in such amounts as to interfere with public rights in waters of the state.

b) Floating or submerged debris, oil, scum or other material shall not be present in such amounts as to interfere with public rights in waters of the state.

c) Materials producing color, odor, taste or unsightliness shall not be present in such amounts as to interfere with public rights in waters of the state.

d) Substances in concentrations or in combinations which are toxic or harmful to humans shall not be present in amounts found to be of public health significance, nor shall substances be present in amounts which are acutely harmful to animal, plant or aquatic life.

5.3.6 Compliance with Phosphorus Limitation

Compliance with the concentration limitation for phosphorus shall be determined as a rolling twelve-month average and shall be calculated as follows:

First, determine the pounds of phosphorus for an individual month by multiplying the average of all the concentration values for phosphorus (in mg/L) for that month by the total flow for the month in Million Gallons times the conversion factor of 8.34.

Then, the monthly pounds of phosphorus determined in this manner shall be summed for the most recent 12 months and inserted into the numerator of the following equation.

$$\text{Average concentration of P in mg/L} = \frac{\text{Total lbs of P discharged (most recent 12 months)}}{\text{Total flow in MG (most recent 12 months)} \times 8.34}$$

The compliance calculation shall be performed each month with a reported discharge volume after substituting data from the most recent month(s) for the oldest month(s). A calculated value in excess of the concentration limitation will be considered equivalent to a violation of a monthly average.

5.3.7 Whole Effluent Toxicity (WET) Monitoring Requirements

In order to determine the potential impact of the discharge on aquatic organisms, static-renewal toxicity tests shall be performed on the effluent in accordance with the procedures specified in the *"State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition" (PUB-WT-797*, November 2004) as required by NR 219.04, Table A, Wis. Adm. Code). All of the WET tests required in this permit, including any required retests, shall be conducted on the *Ceriodaphnia dubia* and fathead minnow species. Receiving water samples shall not be collected from any point in contact with the permittee's mixing zone and every attempt shall be made to avoid contact with any other discharge's mixing zone.

5.3.8 Whole Effluent Toxicity (WET) Identification and Reduction

Within 60 days of a retest which showed positive results, the permittee shall submit a written report to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., PO Box 7921, Madison, WI 53707-7921, which details the following:

- A description of actions the permittee has taken or will take to remove toxicity and to prevent the recurrence of toxicity;

- A description of toxicity reduction evaluation (TRE) investigations that have been or will be done to identify potential sources of toxicity, including some or all of the following actions:

  (a) Evaluate the performance of the treatment system to identify deficiencies contributing to effluent toxicity (e.g., operational problems, chemical additives, incomplete treatment)
  (b) Identify the compound(s) causing toxicity
  (c) Trace the compound(s) causing toxicity to their sources (e.g., industrial, commercial, domestic)
  (d) Evaluate, select, and implement methods or technologies to control effluent toxicity (e.g., in-plant or pretreatment controls, source reduction or removal)

- Where corrective actions including a TRE have not been completed, an expeditious schedule under which corrective actions will be implemented;

- If no actions have been taken, the reason for not taking action.

The permittee may also request approval from the Department to postpone additional retests in order to investigate the source(s) of toxicity. Postponed retests must be completed after toxicity is believed to have been removed.

6 Summary of Reports Due

FOR INFORMATIONAL PURPOSES ONLY

Description	Date	Page
Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus - Construction Upgrade Progress Report #1	June 30, 2020	11
Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus - Complete Construction	June 30, 2021	11
Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus - Achieve Compliance	July 1, 2021	11
Temperature Limits -Report on Effluent Discharges	June 30, 2020	11
Temperature Limits -Action Plan	December 31, 2020	11
Temperature Limits -Complete Actions	July 31, 2021	11
Temperature Limits -Achieve Compliance	August 1, 2021	11
Barium Limit -Report on Effluent Discharges	June 30, 2020	11
Barium Limit -Action Plan	December 31, 2020	11
Barium Limit -Complete Actions	July 31, 2021	11
Barium Limit -Achieve Compliance	August 1, 2021	11
Wastewater Discharge Monitoring Report	no later than the date indicated on the form	12

Report forms shall be submitted electronically in accordance with the reporting requirements herein. Any facility plans or plans and specifications for municipal, industrial, industrial pretreatment and non industrial wastewater systems shall be submitted to the Bureau of Water Quality, P.O. Box 7921, Madison, WI 53707-7921. All other submittals required by this permit shall be submitted to:
Northern Region - Superior, 1701 North 4th Street, Superior, WI 54880